

**STEERING COMMITTEE MEETING SUMMARY  
ETV PACKAGE DRINKING WATER TREATMENT SYSTEMS PILOT  
JANUARY 6, 1999**

A Steering Committee Meeting was held at the Hilton in Romulus, Michigan, on January 6, 1999. The meeting commenced at 8:35 am. Jerry Biberstine, ETV Steering Committee Chairman, welcomed meeting attendees. Attendees introduced themselves (a list of attendees and their affiliations is presented at the end of this meeting summary).

Bruce Bartley, NSF ETV Project Manager, gave a presentation regarding the background and status of the ETV Package Drinking Water Treatment Systems Pilot project. Overheads from Mr. Bartley's presentation are attached.

**Experience with Testing**

Gary VanStone gave a presentation on Calgon Carbon Corporation's (CCC's) experience with the ETV testing process. CCC was the first Manufacturer to apply for and conduct ETV testing under the package drinking water treatment systems ETV pilot project for microbiological inactivation by its Ultraviolet Reactor equipment. Overheads from Mr. VanStone's presentation are attached.

**Define Effectiveness**

Jerry Biberstine introduced the next agenda item, stating that one of the initial goals established by the Steering Committee for this ETV project was to reduce site-specific pilot testing. As this process has proceeded, it is becoming obvious that this has lead to identifying the worse case scenario for pilot requirements and it has made ETV testing a time consuming and expensive undertaking. It is also apparent that some states are not accepting the concept and that they may want to see a pilot run in their state before approving a system.

The primary goal of this ETV pilot project is to identify technologies for small systems to help them achieve compliance with drinking water regulations. The project realizes that it can not answer every question for every state. The project needs to consider how to: 1) provide adequate information to show that the equipment works, and 2) get the technology onto the states' lists to consider for a small system. Mr. Biberstine then posed the following question to the meeting attendees: Today we want to attempt to define effectiveness for this ETV project; what is sufficient for the states to at least open the door to the technology?

Jerry Smith commented that to maximize the introduction of a new technology into a state, the Manufacturer should have research and development (R&D) information over the range of water quality parameters applicable to their technology. Jerry Biberstine added that if the range at a site is outside the R&D range, a separate study may be needed.

Chris McMeen commented that the State of Washington is interested in the “failure mode” of the equipment. They need to know if the equipment can handle the most extreme water quality conditions without failure. Ashley Bird stated that the R&D should determine this failure mode.

Brenda Land stated that the failure of bag and cartridge filters is effected by starts and stops of the system for very small systems and that this should be a concern of the test plan. She will discuss this with the test plan writer to address her concerns.

Jerry Smith asked what the definition is for a “small system” for this ETV project. Jerry Biberstine answered that there is no definition for this project; that any small system innovative technology is considered. Bruce Bartley added that a small system is anything bigger than a point of entry device.

Jim Bell commented that for a small company, the cost to implement a protocol/test plan is too much; his company got quotes for testing, but the number of seasons was prohibitive. He talked to four different state representatives and all four states had less seasons than the test plan required. He recommended that maybe this project should just give the equipment the notoriety that it works under some set of conditions, and that this may be accomplished by one season of testing. Jerry Biberstine thought perhaps if we take the most stringent test period and test during that, that would at least open the door for states to consider the technology. Jim Bell added that the number of seasons might be different for groundwater and surface water sources.

Steve Duranceau emphasized that we need to consider the small communities’ cost because once they install these systems the Manufacturer is gone. It may be beneficial to small communities if at least two seasons are considered by this ETV testing.

Penny Hansen informed the Steering Committee and stakeholder group that many of the ETVs started with very stringent protocols, then after testing began, it was common for the ETVs to reconsider the critical factors to get the technology introduced into the marketplace. The ETV could then be a more cost efficient way to give technologies an entryway.

David Pearson stated that if the Manufacturer makes a claim for his equipment and challenges the equipment against the claim, the number of seasons is irrelevant as long as the effectiveness over that range is demonstrated. This demonstration over a range would help with initial acceptance.

Glen Latimer stated that he has run many pilot tests for small systems, and he believed that a protocol could not be written to satisfy all states’ requirements. Some piloting requirements are very expensive and some are not as expensive. Some of the less expensive requirements can be easily demonstrated; it’s the more expensive tasks such as spiking studies that are prohibitive. Perhaps the ETV project should cover the less expensive tasks and then for the more expensive tasks, a pilot installation or other field data could be used by the state.

Robin Collins stated that the overall protocols are great right now, but the costs to implement

them are too high. Perhaps we should identify the most important things to test for: treatment performance or O&M parameters? We already know that a lot of systems work at optimum conditions; perhaps we should keep that in mind when determining critical parameters to test for.

Keith Lowery sees the ETV as a process to weed out technologies that are ineffective. Even if a system had gone through one season of ETV testing, Alabama would consider that as a first cut and they might favor that, but Alabama would still likely require a site-specific pilot test.

Ramesh Bhavne noted that if the performance of the technology works at a site, the O&M responsibility is on the Manufacturer. The technology process should be verified under a range of conditions. He added also that scalability can be a factor of process performance.

Steve Duranceau stated warranties on small systems are very limited and that the issue of indemnification or negligence gets sticky because Manufacturers can sometimes find loopholes in their limited warranties. This is one reason the protocol and test plan writers wanted to show a range of performance and, therefore, chose multiple seasons.

Jim Bell stated that the ETV should be used as a demonstration for new technologies to be introduced into the marketplace. Some of the tasks in the current test plans are for technologies in later stages. O&M is a long-term issue and for the short-term, the ETV should focus on initial demonstration.

John Dyson brought up the topic of the use of existing data to show effectiveness over a wide range of parameters. The pilots will not be representative of O&M and this will make existing data important.

Ashley Bird stated that it may be difficult to determine if there is just one most challenging season; each season may have a parameter that makes that season challenging in a unique way. Using other sites' data will be useful in supplementing ETV testing.

Joe Harrison has been working with a small systems committee with the Water Quality Association and they deal with Manufacturers that have a low profit margin. These companies will not be able to afford the cost of the ETV testing. The ETV test can show that the system works under a reasonable range of water quality parameters and operating conditions, but it cannot show that it works under a full matrix. Perhaps the test plans could offer four seasons of testing but have a specified number of seasons that would be the minimum requirement.

Rick Sakaji added that the states need to know that a system will work with some degree of assurance and that includes O&M information. O&M information from a state perspective is very important. In some cases, seasonal testing may not be necessary to assure the integrity of the barrier.

Joe Jacangelo stated that a major cost of the ETV testing is the setup and breakdown of the

system. The question arises: What do we do with the equipment between the required testing periods? This should be taken into account. Also, we need to decide whether the goal of our ETV project is to allow the entry of new products into the marketplace or to reduce the amount of state-specific pilot testing required, because these two goals are different and would require different approaches by the protocols and test plans.

Jerry Biberstine reiterated Joe Jacangelo's comment. Mr. Biberstine paused the meeting for the morning break at 10:25 am.

## BREAK

At 10:55 am, Jerry Biberstine recapped the morning discussion. The purpose of the ETV is for verification testing of commercially ready products (those that have already undergone R&D). The purpose of the ETV is not R&D. The Manufacturer should know the claims of performance for the product and what parameters do not have an effect on the process. The Manufacturer should be able to provide a list of claims they want verified during the ETV process. *The primary goal of the ETV is to open the market to new technologies and a secondary goal is to reduce site-specific pilot testing.* We must decide how to write/alter the protocols to address this primary and secondary goal. Mr. Biberstine requested comments from the Steering Committee and the attendees.

David Pearson stated that he hopes the states won't make the Manufacturers repeat pilot testing if they have already gone through the ETV process. Jerry Biberstine remarked that if the parameters at a state are outside those tested during the ETV, the state may require additional testing. Glen Latimer suggested that the ETV gives a baseline for the product.

Jerry Biberstine also discussed the topic of existing data that John Dyson brought up earlier. Existing data can be useful to show how and where a product has been used, although this would be a compilation and not a verification. He suggested that existing data could be presented in an appendix.

Frank Niles explained that Massachusetts requires pilot testing or data from a third party such as another state's installation. Specifically, if the system is new, it must undergo site-specific piloting in accordance with Massachusetts' requirements and perform well. They may also approve a system based on the third party data. In this case, the system must have been in existence for at least 5 years and have approval from at least three primacy states (one of which must be New York or a New England state) for a minimum of 2 years. If this third party data requirement is met, no on-site pilot is required, but they may contact the state administrator or site operator of the current installation to obtain their opinion of the system.

Rodney Herrington said that his company has historical data, but the existing data review criteria being developed by this ETV project is too stringent. Even if the data does not meet this criteria, it is still valuable and he suggested that perhaps it could be graded.

Bob Mann has concerns regarding the ETV because of the reluctance of Manufacturers to spend money on this testing and because of the unpredictability of acceptance of the results. Perhaps we should offer a stepwise approach in the protocols, where different steps mean different amount of money to implement, but different levels of acceptance. This could give the states some latitude to judge the systems also.

Mr. Biberstine introduced Phil Olsen who spoke on cost reduction suggestions.

### **Cost Reduction Suggestions**

Phil Olsen led a discussion on cost reduction suggestions, and handed out a letter presented by Cartwright, Olsen and Associates (attached). This handout discusses the possibility of allowing Manufacturers the flexibility to select the combination and number of water quality matrices and operating conditions under which the ETV testing is run for their system to maximize the investment they make into the ETV testing. Phil also reminded the attendees that the Manufacturer, when considering cost, should consider how much they would spend to introduce their equipment to 50+ state regulators under a credible program.

Robin Collins inquired if a Manufacturer could get matching funds for more than one site for one piece of equipment. Bruce Bartley answered that yes, they can, but the \$100,000 per piece of equipment is the cap. The manufacturer can split the \$100,000 among as many sites and FTOs as they desire to verify their claim.

Robin Collins then inquired how easy it would be to modify a verification statement if new data was generated for a piece of equipment. Bruce Bartley answered that if the data are generated under the ETV program, a separate report and verification statement would be generated for a separate water quality matrix showing how the system worked on the second site as well as the first site.

Phil Olsen stated that once an FOD and verification report and statement have been prepared for a piece of equipment, the Field Testing Organization will not need to spend as much time and money preparing a new FOD and report for a new set of water quality conditions. These additional data sets will be able to be generated for a reduced rate after the first ETV test is complete. The FTO will have already defined the operating range when preparing for the first ETV test and they will be familiar with the engineering and operating principals of the system.

Joe Harrison motioned that the Manufacturer be allowed to select the parts of the protocols and test plans that he wants challenged and verified. Phil stated that the Manufacturer already chooses the performance range of the system. The problem is that even if the Manufacturer narrow their claim, some of the test plans still require four water quality matrices or seasons of

testing. He proposed giving the Manufacturer the flexibility to select claims and the duration of testing to verify the claim. The quality assurance and quality control (QA/QC) requirements should not be changed, but the Manufacturer should be able to choose seasons to be tied to the performance claim.

Jim Bell wondered if the FOD could just state up front: “These are the deviations from the Test Plan”. The response was that the protocol and test plan requirements must be followed to give credibility to the project and that there should not be an option to “pick and choose” protocol requirements. Joe Jacangelo proposed amending the protocols and test plans after identifying the major cost issues and allowing flexibility on those issues/parameters.

David Pearson stated that there is some confusion regarding the term “season of testing”: this is a specific water matrix. Jerry Biberstine agreed. He stated that it may take more than one site to achieve the desired range of feed water characteristics to verify the range defined in a performance claim. Ashley Bird was concerned about allowing the Manufacturers too much flexibility, and that it might not be as useful to the states.

Jerry Biberstine summarized that the Protocol and Test Plan will define a set of water quality parameters to be verified and then the Manufacturer will develop an estimated concentration range for the parameters by which their technology will be verified through testing. Then, however many seasons or sites are needed to meet the range of parameters in their claim, that is what they will test.

Jerry Biberstine paused the meeting for lunch 11:45 am.

## LUNCH BREAK

A presentation of the EPA/NSF Source Water Protection ETV Pilot was made by Tom Stevens, the NSF Pilot manager. The scope of the Pilot is technologies that are designed to prevent contamination of ground or surface waters that could be used as a drinking water source. A canvass of state representatives responsible for preparing the Source Water Protection Plan was completed by NSF to identify activities or contaminants that are of concern. The response rate was approximately 45%, with septic systems identified as the most frequently referenced contamination activity, followed by agricultural activities, under- and above ground storage tanks, dumps and landfills and many other activities. Nitrates were the top contaminant of concern, with VOCs, SOCs, coliform and Cryptosporidium also listed as major concerns. As indicated by the canvass, the number of technologies encompassed by the Pilot scope is extremely large, and narrowing of these technologies will be the first item to be addressed by the Stakeholder Advisory Group at their first meeting February 10 and 11, 1999 in Baltimore. Additional information about the Pilot may be obtained from Tom Stevens at (734) 769-5347.

A brief description and status report on the Wet Weather Flow Technologies ETV (WWF-ETV) was presented by John Schenk, the NSF Pilot manager. The WWF-ETV is concerned with

technologies that address stormwater discharges, combined sewer overflows, and sanitary sewer overflows attributable to wet weather events. The Stakeholder Advisory Group for this pilot met for the first time in November 1998 and prioritized the various technology groupings considered. The five highest-rated technologies include: high-rate inertial separation, high-rate disinfection, source control devices, monitoring equipment, and mathematical models. Technology panels are currently being formed for three specific technological areas: ballasted sedimentation, mathematical modeling, and monitoring equipment.

At 1:15 p.m. Jerry Biberstine re-started the meeting.

Penny Hansen stated that the ETV Protocols are working documents, and that, in other ETVs, the Protocols have been changed based on the needs of the ETV.

Jerry Biberstine summarized the outcome of the morning discussion and made a list of considerations:

1. NSF and their protocol writers should look at the parameters currently required in the protocols and test plans and decide which are absolutely necessary and which would be voluntary.
2. The ETV test will consist of the verification of the Manufacturer's claims for the necessary parameters over the water quality matrix they choose.
3. A change in claims or additional data collection is an option for Manufacturers if they wish to expand their performance range after their first round of ETV testing is completed.
4. Verification reports shall only report actual data collected in the field during verification testing, not the Manufacturer's range of performance capabilities.

NSF will work with their technical writers to address these considerations in the project protocols and test plans.

Rick Sakaji wondered how "necessary" parameters will be defined. Jerry Biberstine stated that is what our protocol writers need to decide, and it will be technology-specific. Rick added that part of this ETV should be to educate regulators about specific technologies and the necessary parameters for that technology, especially with new technologies in the water treatment marketplace.

Bob Mann wondered if there were other issues in the protocols that need to be revisited, such as QA/QC. It was the consensus of the Steering Committee and the Stakeholders that the QA/QC requirements cannot be compromised.

Bruce Bartley stated that he has been hearing that one of the largest costs to implement the protocols is on-site labor. Perhaps that should be kept in mind when altering the test plans. Reduction of the number of test periods would help decrease testing costs.

Bruce Bartley continued the discussion on cost reduction suggestions by introducing some ideas submitted by CH2M HILL, including the possibility of supplementation (spiking) of feedwater

and modifying the requirement to verify on-line instrumentation with benchtop instrumentation for turbidity, etc.

Paul Mueller continued this discussion by stating that some feedwater parameters such as turbidity, arsenic, etc. can be augmented. Considering how expensive it is to set up and break down and even to get it running and get familiar with the system, the option of multiple sites is a very expensive one. Also, an FTO may anticipate an increase in a certain parameter at a site based on historical data from that site and then not see the increase in a given year or when the ETV testing was occurring. By allowing augmentation, these pitfalls could be avoided.

Jerry Biberstine stated that artificial spiking may not be verifiable.

Glen Latimer added that it is difficult to wait for the correct weather conditions. There is no ASTM method for spiking, although spiking studies are often approved by states after they have waited for a long period and not seen the desired testing conditions.

Tom Hargy suggested by-passing pretreatment to mimic a breakthrough scenario, then simulate higher turbidity using raw water.

Gary Logsdon stated that in agricultural areas, the source of the turbidity is primarily topsoil in runoff. For turbidity spiking, an FTO could buy topsoil from a farmer, prepare it properly (i.e., make a slurry with the non-settleable solids) and use it to simulate river turbidity.

Jerry Biberstine stated that spiking may be appropriate on a case by case basis. We wouldn't want too much freedom in spiking materials. Gary Logsdon suggested requiring a naturally occurring substance. Bruce Bartley stated that the protocol writers are present at this meeting and they are hearing the ideas and that they can address spiking on a technology by technology basis by revising the test plans.

Paul Mueller suggested the test plan require that if augmentation is performed, the verification report should describe how it is performed.

Debi Huffman stated that if augmentation is allowed by test plans, the test plans should instruct the FTOs on how to perform augmentation for standardization of the process.

Ashley Bird stated that the characteristics of turbidity varies from state to state, and that augmentation is no less representative than using turbidity performance data from another state. Mr. Bird pointed out that the ETV documents provide for good QA/QC and that the QA/QC requirements in these test plans would offset the concern regarding difference in turbidity characteristics.

The discussion on reduction of costs continued with Joe Jacangelo and his concern regarding the maximum pore size distribution requirement in the membrane test plans. He stated that this is an



expensive test to have done (\$10,000-\$15,000) and suggests allowing Manufacturers to submit their own maximum pore size distribution data rather than require an independent lab to perform the test.

Robert Taylor said that the states want to know how this test is done. Rick Sakaji added that some Manufacturers say this is proprietary information and that there is also no standard method. Perhaps the test plans should differentiate between membrane types with wide vs. narrow distributions.

Joe Jacangelo stated that the challenge testing would provide the information needed about the pore size of the membranes. Rick Sakaji said that even if that is true, the states would still have to deduce one from the other. David Pearson added that even if the maximum pore size distribution task is performed, there is no guarantee that the membrane the test is performed on will have the exact characteristics of that installed in a system.

The next cost reduction selection had to do with automation of data collection, as suggested by David Pearson. Robert Taylor pointed out that even errors occur with on-site operators. Phil Olsen stated that it may be technology-specific as to how much attention a system needs. Phil Olsen also pointed out that there is a risk involved with automation: you may run through the entire verification test and problems that were encountered during the test were not caught until the end. John Dyson stated that this is a Manufacturer issue.

### **Existing Data**

Kristie Wilhelm reviewed the existing data review process as it currently stands as approved by the Steering Committee. Bruce Bartley asked for suggestions as to whether this process needs to be modified.

Jim Bell stated that the Manufacturers have been given the option to become a conditionally qualified FTO to collect and submit their own existing data packages. He stated that the requirement to have prepared and executed a Quality Assurance Project Plans is a stumbling block for Manufacturers applying to become a conditionally qualified FTO. Manufacturers follow state QA/QC guidelines in their pilot study work but do not have a formal written plan. He suggests that this specific requirement be waived for Manufacturers wishing to submit their own existing data. Jerry Biberstine added that this data would have been collected or reviewed under the state administrators anyway.

John Dyson stated that often a Manufacturer has such a huge matrix of water quality parameters they can treat, and existing data is important to supplement ETV testing to show this. But currently the QA/QC requirements for existing data under this ETV are too strict. Joe Jacangelo suggested that perhaps we would get rid of the 1s and 2s (1=ranking for a necessary parameter and 2=ranking for desired but not necessary) currently on the existing data requirements for the different technologies and instead give Manufacturers and FTOs a guideline on what to compile and how. Then the information can be peer reviewed and made into a report.

Jerry Biberstine suggested getting something from the state in which the data was collected regarding their experience and their opinions on the system. We could ask the state if they would re-approve the system if requested. This would add credibility to the equipment.

Michiel Doorn asked if there is a good reason not to submit all the data that is available. The FTOs or Manufacturers look at it already when compiling data. During this process, the quality can be judged.

Jeff Adams stated that the whole concept of existing data needs to be revisited. Originally existing data was seen as useful in supplementing verification testing, now it is being thought of as useful on its own. He opened the topic to written comments until January 30. After that time, an approach for existing data in this ETV project will be decided.

Jerry Biberstine paused the meeting for a break at 2:30 p.m.

**BREAK**

At 3:00 p.m. Jerry Biberstine re-started the meeting.

### **Protocols**

Carol Becker discussed the protocols. The Nitrate Protocol did not receive enough ballots to approve. NSF had planned on having the Steering Committee revote on this protocol, but considering the global changes that have been suggested on the protocols in general, NSF will revisit this protocol before having the Steering Committee re-ballot.

Bruce Bartley asked if anyone thought that this ETV should consider the verification of on-site measurement instruments. Robin Collins stated that this would be good to coordinate with AWWARF. The states seemed interested in this.

### **Report Policies**

Bruce Bartley informed the Steering Committee members and stakeholders that Calgon Carbon Corporation did a good job at the AWWA Water Quality Technology Conference with their marketing information.

The policy of NSF and this ETV project is that companies whose equipment has been verified through the project can use the EPA and NSF names in their marketing literature, but that they cannot use the NSF or EPA marks on their products as endorsements. A proposal on the use of interim results, the final report and the verification statement were presented in the meeting packet under Tab 4.

Tom Hargy asked if data from the verification tests can be presented by the manufacturer or any of their testing organizations. Who owns the data once it is collected?

Bruce Bartley answered that when the Manufacturer is receiving matching funds from the government for the testing, the government owns the data. After the matching funds for this ETV project ends, that becomes a good question.

Jim Bell asked for clarification: as the proposal is written, Calgon Carbon Corporation would not have been able to present at the Water Quality Technology Conference? Bruce Bartley stated that is correct.

John Dyson is concerned about proprietary information being in these documents and them being public domain under the ETV project (e.g. the information could be obtained through the Freedom of Information Act, FOIA). The Manufacturer is putting up money too, and they should have some rights to the data as well.

Steve Duranceau stated that a provision of the omnibus federal appropriations bill basically states that the public has the right to any data produced under an award through FOIA that is under public domain. The question of intellectual property rights is a good one.

Gary VanStone stated that Calgon Carbon Corporation wants to get the information to the public, not hide it from them.

Glen Latimer asked for clarification: a Manufacturer can use the mark on literature but not equipment? Bruce Bartley answered that it is a question of certification vs. verification. The ETV is a verification program. For verification, the Manufacturer can use the NSF name but not the mark.

Tom Hargy asked if preliminary data could be presented to the public before the verification report and statement are issued. Bruce Bartley stated that the concern is if a presentation is made and someone uses that information in a decision process but then an error is discovered during a peer review, that could result in legal problems. Perhaps the data could be presented without the EPA or NSF names.

Gary Logsdon suggested having a disclaimer attached to any data that is presented before a peer review, such as "the EPA has not yet reviewed this data".

Joe Harrison said that it is possible that a Manufacturer might try to show a long list of claims for their equipment then at the end stated "as verified by the EPA/NSF ETV". Bruce stated that a case like that would likely be handled like another NSF issue, i.e. the Manufacturer would be contacted to publish a public notice to clarify the claims.

David Pearson agreed that the data collected with government money is public domain, but what about design information? Bruce Bartley answered that only basic design information and engineering principals are requested by the test plans and that the Manufacturers should not submit information they consider confidential.

Steve Clark stated that it is possible for information submitted to the government to be classified as confidential, but it is very cumbersome.

Bruce suggested that the Manufacturers get together on this issue and propose something to NSF if they are not content with the submittal requirements in the test plans and protocols as proposed by NSF. Tom Bruursema suggested that the state representatives also get together and discuss how they keep proprietary information confidential.

Ashley Bird stated that they do receive confidential information and suggested that the Manufacturers be cautious of the perceptions that develop when information is being concealed.

Jim Bell asked if they can publish or distribute existing data before it is peer reviewed by the ETV. Bruce answered that the data belongs to the Manufacturers already and they can do with it as they see fit.

### **State Input**

Jerry Biberstine stated that the success of this ETV project depends highly on the opinions of the state drinking water administrators. Several of these state representatives attended this meeting and he wanted them to give their opinions about the direction this meeting was taking or other comments about the project.

Jerry, as the administrator in Colorado, began the discussion. Jerry thought that the project is going okay. He believes that backing off on requirements will make it easier for new technologies to be introduced to states without a significant loss in data credibility or usefulness.

Robert Taylor (Virginia) thought that we should be cautious in this big shift in direction. One of the goals had been to cut down on the state-specific pilot requirements and what we have proposed may do the opposite. He has concerns that the ETV will cost the Manufacturers more than what they are saving.

Jeff Adams stated that even if the cost is more, additional value is added by the independent oversight. Robert Taylor said that he does not disagree, but that Virginia takes the Manufacturers' data for what it is worth.

Bob Mann (New Hampshire) stated that he sees the changes being proposed as positive, and that they may increase the participation in this ETV project and encourage the flow of information to states and consultants. He also said that he believes the existing data discussion is important, and that the requirements may have been too stringent before.

Ashley Bird (Ohio) said that he would like to reserve judgment. He believes the concepts behind the changes are good, but that he wants to see the changes and how they will be implemented. He stated that the states need high quality, peer reviewed, third party data, and that another focus of this ETV should be proactively selling the project to states through ASDWA, discussing the

benefits of quality data.

Rick Sakaji (California) stated that he saw positive changes today. He is anxious to see the first report and verification statement and thinks it will be important in building the regulators' confidence in the project. If it is easy to read and digest, it will be good for the perception of the ETV. There is not a good network between state administrators among those that review the new technologies, and such a network would help build more confidence in data sharing and acceptance from state to state.

Jerry Smith (Minnesota) also thought that the conversations that took place today were positive. He thought it was a good idea to get the protocols out and working then tweak them as needed. His concern was what the limits will be for very small systems with limited budgets. Can we get systems to small communities in a cost effective way?

Red Weddell (Texas) stated that QA/QC is a large concern for them (standard methods, how often data is collected, etc.). Whether Texas reduces pilot testing requirements will depend on how the tests were run. As long as the procedures are in the verification report then this data would be extremely useful to them.

Chris McMeen stated that Washington has flatter seasons than some states, so the reduction of the number of testing periods is a possibility. The failure mode of a product may be seasonally dependent, and may fall apart on some sites if only a single season is piloted. Augmentation of feedwaters can be good if conducted in a rational way. Automation tested through the ETV should be consistent with what the Manufacturers are selling as small systems.

Keith Lowery stated that the state of Alabama will continue using the same permitting procedures as before.

Frank Niles stated that Massachusetts will view the ETV data like third party data: currently they require two years of data for a technology to prove themselves and they will contact other states and the Manufacturer before approving. They will likely accept an ETV report but will follow up on it before approving.

Bill Morris (Georgia) stated that he thinks the pilot is headed in the right direction with the broadest participation possible. He emphasized that Georgia is looking for good data.

Sheryl Robbins (Connecticut) stated that she hopes the ETV pilot will help reduce the review time for new technologies and will allow the introduction of new technologies into the marketplace quicker. Due to the climatic changes in Connecticut, they will probably still require a seasonal test.

Robin Collins said that he would like to see representatives from public water supply utilities at these meetings or that we should at least touch base with them. He emphasized that a major

concern of the small communities is operations and maintenance costs.

Jerry Biberstine announced that the meeting was ahead of schedule and that we would now continue with the meeting agenda items scheduled for January 7.

### **Scale-Up**

Bruce Bartley stated that the general idea for this ETV was that the Manufacturer would have their smallest system tested for a particular technology and that the data could be extrapolated for larger models. He then asked what the critical design parameters to consider when scaling. He posed the following questions: Should the ETV require the Manufacturer to test their smallest system? Should a list of critical design parameters be submitted by the Manufacturer before the verification testing?

Tom Hargy stated that if the smallest unit is tested, the test would be less expensive.

Jim Bell thought this should be the Manufacturer's decision. Scale-up is a problem, but the Manufacturer may not be comfortable with scaling up a unit or having their smallest unit tested. The Manufacturer should know what size system is representative.

Steve Duranceau stated that this is a common issue brought up by others and that he agrees that the Manufacturers know their products and that some of the smallest systems are not necessarily representative to give good data to extrapolate. Going too small may be negative to the ETV program.

John Dyson stated that sometimes Manufacturers are not able to give out information regarding scale-up due to confidentiality.

Glen Latimer stated that in his experience, the larger products work better than the smaller pilots, but it is unique to each technology.

Jerry Biberstine stated that a concern regarding testing the smallest is that if someone needs a larger system, they may then try to get a larger number of the smaller system models rather than one larger sized system. What is also a concern to the states is when the Manufacturers scale a product, if they change certain parameters such as the media material.

Jim Bell stated that existing data can help with acceptance of other size systems.

Bruce stated that from this discussion he gathers that scale-up is a non-issue for the ETV. The ETV is to verify test results for one system. The scalability issue will need to be addressed with the state administrator and the Manufacturer. The requirements will be the same for all size systems and the Manufacturer will decide which size system they want tested. John Dyson added that this is a verification process, not a certification of a certain model, and scale-up is assumed.

**Testing Application to NSF**

Bruce Bartley reviewed the materials presented in Tab 7 of the meeting packet regarding the possibility of having a Manufacturer apply directly to NSF and NSF helping pair them with an FTO and a test site. This would allow the Manufacturer a point of contact to coordinate activities, particularly if the Manufacturer also wanted to pursue certification through other NSF programs. This wouldn't change the ETV verification process (a qualified FTO would still perform the testing and prepare the reports), but it would give the Manufacturers another way to approach the process.

Joe Harrison stated that he sees NSF as the overseer and auditor. They should maintain partiality toward the FTOs, and that cannot be compromised. The perception of NSF having bias toward certain FTOs would be bad for the project.

Jim Bell stated that, knowing both the certification and verification processes, that is not something he would want to undertake at the same time anyway. From a Manufacturer's standpoint, he would like to see this kept separate.

Steve Duranceau stated that NSF has helped establish the criteria for testing. If NSF gets involved, it ruptures the credibility. He thinks that NSF should remain objective and not "babysit" the participants.

Paul Mueller stated that if there is a perceived problem by the Manufacturers, then NSF should give them the guidance they need but let them pursue the testing like it is currently established.

Gene Koontz stated that this approach likely makes all the FTOs uncomfortable. He suggested that if a Manufacturer contacts NSF directly, NSF should send each qualified FTO an email with the Manufacturer's contact information and the FTOs should pursue the project independently.

Joe Jacangelo stated that it sounds like there is a misconception on the part of the Manufacturers in regard to the FTOs. The FTOs are willing and eager to help the Manufacturers through this process.

Nancy McTigue stated there may also be a potential problem if the verification testing results are not favorable: will the Manufacturer go after NSF?

Bruce Bartley stated as a result of the discussion that this was a non-issue. Jerry Biberstine concluded that we should leave this process alone and continue to have the Manufacturers go directly to the FTOs.

**Action Items**

Bruce Bartley stated that we have covered all the agenda items and he provided an outline of the actions to be taken as a result of the meeting.

Bruce Bartley stated that the protocol and test plan writers will incorporate the issues discussed in the meeting. The protocol revisions will be handled in this order: 1) those that have tests already underway (i.e. microbiological and particulate removal by membranes); 2) those that have had applications submitted or FODs being written (i.e. bag filters and cartridge filters); 3) finished protocols and test plans; and 4) other protocols. The updates will be taken directly to the Steering Committee for approval and then the new protocols and test plans will be made public.

NSF will accept suggestions on the approach to existing data until January 30. A conference call will likely be arranged thereafter with the Steering Committee members to resolve this issue.

It was recommended that Brenda Land discuss the stop/start issue related to bag and cartridge filters with the test plan writer, Gary Logsdon.

Another issue that had been brought up but was not on the agenda was the issue of government-funded organizations applying to be FTOs. Peter Cartwright informed NSF of the 1998 Federal Acquisitions Inventory Reform (FAIR) Act that may prohibit such organizations from being approved by the ETV project as an FTO. NSF has submitted this issue to the EPA/ETV and is awaiting a response.

### **Next ETV Meeting**

As new issues arise, another meeting will be scheduled. As many issues as possible will be resolved by conference calls. Everyone on the mailing list will be kept informed.

### **Information Dissemination**

All attendees of the meeting will receive this meeting summary and it will be posted on the internet. All major announcements for the project will be sent to everyone on the mailing list, which now consists of over 750 people.

The meeting was adjourned at 5:20 p.m.

### **Meeting Attendees:**

Jeff Adams, U.S. Environmental Protection Agency  
 Penny Hansen, U.S. Environmental Protection Agency  
 Jerry Biberstine, Colorado Health Department  
 Bruce Bartley, NSF International  
 Carol Becker, NSF International  
 Kristie Wilhelm, NSF International  
 Tom Bruursema, NSF International  
 Tom Stevens, NSF International  
 John Schenk, NSF International  
 Allison Wayman, ICF Kaiser  
 Gary Logsdon, Black & Veatch  
 Greg McKelvey, McKelvey Environmental Management



David Pearson, PCI Membrane Systems  
Jim Bell, Smith & Loveless, Inc.  
Tom Hargy, Clancy Environmental  
Glen Latimer, Kinetico  
John Langan Trojan Technologies  
Joe Jacangelo, Montgomery Watson  
Robert Taylor, Virginia Department of Health  
Phil Olsen, Cartwright, Olsen & Associates  
Peter Cartwright, Cartwright, Olsen & Associates  
Dallas Post, AWWA  
Bob Mann, New Hampshire Department of Environmental Services  
John Dyson, Infilco Degremont  
Tom Steinke, U.S. Filter  
Steve Clark, U.S. Environmental Protection Agency  
Paul Mueller, CH2M HILL  
David Greene, Waterhealth International  
Brenda Land, US Forest Service  
Gene Koontz, Gannett Fleming  
Sanjay Saxena, National Drinking Water Clearinghouse  
Ramesh Bhawe, U.S. Filter  
Joe Harrison, Water Quality Association  
Gary VanStone, Calgon Carbon Corporation  
Jerry Smith, Minnesota Department of Health  
Debi Huffman, Cartwright, Olsen & Associates/University of South Florida  
Keith Lowery, Alabama Department of Environmental Management  
James (Red) Weddell, Texas Natural Resource Conservation Commission  
Bill Morris, Georgia Environmental Protection Division  
Michiel Doorn, ARCADIS Geraghty and Miller  
Sheryl Robbins, Connecticut Department of Public Health  
Frank Niles, Massachusetts Department of Environmental Protection  
Rick Sakaji, California Department of Health Services  
Ashley Bird, Ohio Environmental Protection Agency  
Robin Collins, University of New Hampshire  
Nancy McTigue, Environmental Engineering and Technology, Inc.  
Steven Duranceau, Boyle Engineering  
Greg Anderson, Maryland Department of Environment  
Bryce Feighner, Michigan Department of Environmental Quality  
Chris McMeen, Washington Department of Health  
Dan Uhr, Pall Corporation  
Ron Larocque, Henkin Ozone  
Joe Cotruvo, NSF International  
Rodney Herrington, MIOX Corporation  
Jim Arnold, Rosedale Products